

Application No.: 10/766,069
Response to Office Action of October 5, 2005
Restriction Requirement
Attorney Docket: NORTE-471A
Amendments to the Claims:

1. (Original) A ground sensor assembly adapted for deployment from air to a selected ground location, the assembly comprising:

an aerially deployable sensor housing having upper and lower housing ends defining a longitudinally elongated aperture therebetween;
a plurality of sensor modules connected to each other in a manner as to be longitudinally inserted into the aperture between the upper and lower housing ends; and

an aerodynamic module connected to the sensor modules and being disposed adjacent the upper housing end outside the aperture, the aerodynamic module having a plurality of stabilizers radially extending outward therefrom and forming a generally parallel relationship with the upper housing end to provide aerodynamic stability during the deployment of the ground sensor assembly from the air to the selected ground location.

2. (Original) The assembly of Claim 1 wherein the sensor housing is fabricated from a metallic material.

3. (Original) The assembly of Claim 1 further comprising a penetrating tip member connected to the sensor modules and being disposed adjacent the lower housing end outside the aperture, the penetrating tip member forming a penetrating tip for penetrating the selected ground location after being deployed from the air.

4. (Original) The assembly of Claim 3 wherein the penetrating tip member has a conical configuration.

5. (Original) The assembly of Claim 3 wherein the penetrating tip member is fabricated from a metallic material.

6. (Original) The assembly of Claim 5 wherein the metallic material is steel.

7. (Original) The assembly of Claim 1 wherein the sensor housing comprises a plurality of aerial fins formed adjacent the upper housing end and being radially extended outward therefrom for providing aerodynamic guidance when the ground sensor assembly is deployed from the air to the selected ground location.

Application No.: 10/766,069
Response to Office Action of October 5, 2005
Restriction Requirement
Attorney Docket: NORTE-471A

8. (Original) The assembly of Claim 7 wherein the plurality of aerial fins comprise four aerial fins.

9. (Original) The assembly of Claim 1 further comprising a stop plate disposed between the aerodynamic module and the upper housing end, the stop plate being outwardly extended in a generally parallel relationship with respect to the stabilizers for controlling the ground sensor assembly into a controlled depth when penetrating the selected ground location.

10. (Original) The assembly of Claim 9 wherein the stop plate has a generally circular configuration.

11. (Original) The assembly of Claim 9 further comprising an antenna extended above the aerodynamic module and away from the upper housing end of the sensor housing, the stop plate being sized and configured to mitigate the penetration of the sensor housing to expose the antenna above the selected ground location.

12. (Original) The assembly of Claim 9 wherein the stop plate has a plate edge, each of the stabilizers being extended beyond the plate edges.

13. (Original) The assembly of Claim 1 wherein the sensor modules are selected from the group consisting of a magnetic sensor, a seismic sensor, an acoustic sensor and combinations thereof.

14. (Original) The assembly of Claim 1 wherein the sensor housing defines a longitudinal axis and the sensor modules are axially interlocked to each other in a stack formation along the longitudinal axis.

15. (Original) The assembly of Claim 14 wherein each of the sensor modules comprise a main module body, a collar and a capture ring, the main module body and the capture ring being engaged to each other in a manner as to secure the collar therebetween.

16. (Original) The assembly of Claim 15 wherein the collar is freely rotatable between the main module body and the capture ring.

17. (Original) The assembly of Claim 15 wherein the main module body has a main base end defining a main threaded portion externally therearound and the collar has a collar top end defining a collar threaded portion internally therearound, the collar top end

Application No.: 10/766,069

Response to Office Action of October 5, 2005

Restriction Requirement

Attorney Docket: NORTE-471A

being extended over the capture ring to threadably engage the main threaded portion of an adjacent main module body with the collar threaded portion thereof.

18. (Original) The assembly of Claim 15 wherein the main module body has at least one main hole and the capture ring has at least one capture hole, the main and capture hole(s) being elongated along a same direction as the aperture of the sensor housing, the capture hole(s) being aligned with the main hole(s) of an adjacent main module body and be sized and configured to be secured in position so as to prevent the sensor modules from rotating with respect to each other.

19. (Original) The assembly of Claim 1 wherein the stabilizers are each fabricated from a metallic material.

20. (Original) The assembly of Claim 1 wherein the plurality of stabilizers comprise three stabilizers.

21. (Original) The assembly of Claim 1 wherein each of the stabilizers have an elongated rod configuration.

22. (Withdrawn) A method of deploying a ground sensor assembly from air to a selected ground location, the method comprising the steps of:

- a) releasing the ground sensor assembly having an upper housing end and a plurality of stabilizers from the air;
- b) directing the ground sensor assembly towards the selected ground location;
- c) stabilizing the ground sensor assembly with the stabilizers radially extending in a generally parallel relationship with respect to the upper housing end;
- d) penetrating the selected ground location to a controlled depth with the ground sensor assembly; and
- e) performing a sensing activity of the selected ground location.

23. (Withdrawn) The method of Claim 22 wherein step b) comprises:

- 1) defining a plurality of aerial fins radially extending outward from the upper housing end; and

Application No.: 10/766,069
Response to Office Action of October 5, 2005
Restriction Requirement
Attorney Docket: NORTE-471A

2) guiding the ground sensor assembly in the air toward the selected ground location with the aerial fins.

24. (Withdrawn) The method of Claim 22 wherein each of the stabilizers in step c) have an elongated rod configuration.

25. (Withdrawn) The method of Claim 22 wherein step d) comprises:

1) defining a penetrating tip member, a stop plate and an antenna of the ground sensor assembly;

2) penetrating the selected ground location with the penetrating tip member; and

3) mitigating the penetration of the ground sensor assembly with the stop plate to expose the antenna above the selected ground location.

26. (Withdrawn) The method of Claim 22 wherein step e) comprises:

1) defining a plurality of sensor modules inserted within the ground sensor assembly in a stack formation; and

2) sensing the selected ground location with the sensor modules.

27. (Withdrawn) The method of Claim 26 wherein the sensor modules are selected from the group consisting of a magnetic sensor, a seismic sensor, an acoustic sensor and combinations thereof.